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(FILE 'USPAT' ENTERED AT 11:41:33 ON 24 MAY 93)

L1 1410 S HIV OR LAV OR ARV OR HTLV
L2 8437 S DNA
L3 1014 S NUCLEIC(W)ACID(P)SEQUENCE
L4 105 S L1 AND L3
L5 566 S HUMAN IMMUNODEFICIENCY VIRUS
L6 1444 S L1 OR L5
L7 29 S L6(P)L3

=> d 1-10

1. 5,210,181, May 11, 1993, T-lymphotropic retrovirus peptide; Bryan T. Butman, et al., 530/328; 435/5; 930/221 [IMAGE AVAILABLE]
2. 5,204,259, Apr. 20, 1993, Methods and systems for producing HIV antigens; Torsten B. Helting, et al., 435/252.3, 5, 69.1, 69.3, 69.7, 172.3, 252.33, 320.1, 974; 536/23.72; 930/221; 935/23, 27, 38, 45, 47, 72, 73 [IMAGE AVAILABLE]
3. 5,198,346, Mar. 30, 1993, Generation and selection of novel DNA-binding proteins and polypeptides; Robert C. Ladner, et al., 435/69.1, 172.3, 252.3, 320.1 [IMAGE AVAILABLE]
4. 5,196,305, Mar. 23, 1993, Diagnostic and amplification methods using primers having thymine at 3' end to overcome primer-target mismatch at the 3' end; John B. Findlay, et al., 435/6, 91, 805, 948; 436/501, 811; 536/24.3, 24.32, 24.33; 935/6, 17, 19, 78, 88 [IMAGE AVAILABLE]
5. 5,192,553, Mar. 9, 1993, Isolation and preservation of fetal and neonatal hematopoietic stem and progenitor cells of the blood and methods of therapeutic use; Edward A. Boyse, et al., 424/529; 435/2, 172.1, 172.3, 240.2, 240.26 [IMAGE AVAILABLE]
6. 5,187,083, Feb. 16, 1993, Rapid purification of DNA; Kary B. Mullis, 435/91, 6, 259, 270, 803, 820; 536/23.1; 935/19, 20, 21 [IMAGE AVAILABLE]
7. 5,176,996, Jan. 5, 1993, Method for making synthetic oligonucleotides which bind specifically to target sites on duplex DNA molecules, by forming a colinear triplex, the synthetic oligonucleotides and methods of use; Michael E. Hogan, et al., 435/6, 91; 436/94; 536/24.5, 25.1 [IMAGE AVAILABLE]
8. 5,176,995, Jan. 5, 1993, Detection of viruses by amplification and hybridization; John J. Sninsky, et al., 435/6, 91, 810; 436/811; 536/24.32, 24.33; 935/78 [IMAGE AVAILABLE]
9. 5,175,270, Dec. 29, 1992, Reagents for detecting and assaying nucleic acid sequences; Thor W. Nilsen, et al., 435/6, 91, 291; 436/501, 811; 935/32, 78 [IMAGE AVAILABLE]
10. 5,169,766, Dec. 8, 1992, Amplification of nucleic acid molecules; David M. Schuster, et al., 435/91, 6, 193, 194 [IMAGE AVAILABLE]

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11. 5,156,949, Oct. 20, 1992, Immunoassays for antibody to human immunodeficiency virus using recombinant antigens; Paul A. Luciw, et al., 435/5, 7.2, 69.1, 172.3, 252.33, 810, 820, 974; 935/60, 66, 69, 71 [IMAGE AVAILABLE]

12. 5,153,202, Oct. 6, 1992, Method of inhibiting the activity of human immuno deficiency virus (HIV) in vivo; Michael H. Davis, 514/311 [IMAGE AVAILABLE]

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13. 5,147,777, Sep. 15, 1992, Biologically active reagents prepared from carboxy-containing polymer, analytical element and methods of use; Richard C. Sutton, et al., 435/5; 422/56, 57, 58, 61; 428/403, 407; 435/6, 7.22, 7.31, 7.32; 436/170, 531, 532, 533, 534, 805; 526/286, 314, 317.1, 318.4 [IMAGE AVAILABLE]

14. 5,138,045, Aug. 11, 1992, Polyamine conjugated oligonucleotides; Philip D. Cook, et al., 536/24.5, 23.72 [IMAGE AVAILABLE]

15. 5,128,460, Jul. 7, 1992, Recombinant trichosanthin and coding sequence; Michael Piatak, Jr., et al., 536/23.6; 530/370 [IMAGE AVAILABLE]

16. 5,126,433, Jun. 30, 1992, Soluble forms of the T cell surface protein CD4; Paul J. Maddon, et al., 530/395, 350, 380, 387.2, 387.9, 389.1 [IMAGE AVAILABLE]

17. 5,104,791, Apr. 14, 1992, Particle counting nucleic acid hybridization assays; Scot D. Abbott, et al., 435/6; 436/501; 536/24.32; 935/77, 78 [IMAGE AVAILABLE]

18. 5,096,815, Mar. 17, 1992, Generation and selection of novel DNA-binding proteins and polypeptides; Robert C. Ladner, et al., 435/69.1, 172.3, 252.3, 320.1 [IMAGE AVAILABLE]

19. 5,079,351, Jan. 7, 1992, Oligonucleotides and kits for detection of HTLVI and HTLVII viruses by hybridization; John J. Sninsky, et al., 536/24.32; 435/6, 91, 810; 436/94, 501; 536/24.3; 935/77, 78 [IMAGE AVAILABLE]

20. 5,034,511, Jul. 23, 1991, Variant of LAV viruses; Marc Alizon, et al., 530/326; 435/5, 235.1; 530/324, 350, 395 [IMAGE AVAILABLE]

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21. 5,019,557, May 28, 1991, Method for the effective treatment of disease conditions in humans associated with HTLV-III infection; Ferris N. Pitts, Jr., et al., 514/2; 424/85.1, 86, 88, 89; 514/21 [IMAGE AVAILABLE]

22. 5,019,510, May 28, 1991, Isolation, molecular cloning and sequencing of an HIV-1 isolate from a Gabonese donor; Simon Wain-Hobson, et al., 435/235.1, 5, 239, 974; 935/1, 3, 9 [IMAGE AVAILABLE]

23. 5,008,182, Apr. 16, 1991, Detection of AIDS associated virus by polymerase chain reaction; John J. Sninsky, et al., 435/5, 6, 91; 436/94, 501; 536/23.7, 23.72 [IMAGE AVAILABLE]

24. 5,004,681, Apr. 2, 1991, Preservation of fetal and neonatal hematopoietic stem and progenitor cells of the blood; Edward A. Boyse, et al., 435/2; 424/529 [IMAGE AVAILABLE]

25. 4,925,784, May 15, 1990, Expression and purification of an HTLV-III gag/env gene protein; Robert M. Crowl, et al., 435/5, 974; 436/811; 530/350, 387.9, 388.35, 389.4, 395, 402, 403, 812, 825, 826 [IMAGE AVAILABLE]

26. 4,918,166, Apr. 17, 1990, Particulate hybrid HIV antigens; Alan J. Kingsman, et al., 530/350, 424/89; 435/5; 530/395, 403, 806, 812, 824, 826 [IMAGE AVAILABLE]

antibodies using an internal image idiotope; George B. Thornton, 424/86, 85.8; 436/547; 514/21, 530/387.2, 388.22, 388.75, 389.4, 812, 866

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28. 4,833,072, May 23, 1989, Antigenic peptides and process for their preparation; Viktor Krchnak, et al., 435/5; 422/61; 435/810, 865; 530/327, 328; 930/221, DIG.802, DIG.811

29. 4,738,922, Apr. 19, 1988, Trans-acting transcriptional factors; William A. Haseltine, et al., 435/69.3, 69.1, 91, 172.3, 320.1; 536/23.72, 24.2; 935/32, 34, 39

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US PAT NO: 5,210,181 [IMAGE AVAILABLE] L7: 1 of 29
DATE FILED: Jan. 23, 1992

PARENT-CASE:

This is a continuation of application Ser. No. 07/351,882 filed May 15, 1989, now abandoned.

US PAT NO: 5,204,259 [IMAGE AVAILABLE] L7: 2 of 29
DATE FILED: Apr. 26, 1989

PARENT-CASE:

CROSS REFERENCE TO RELATED APPLICATION

This is a continuation-in-part application of copending applications Ser. No. 191,229, filed May 6, 1988, Ser. No. 206,499, filed Jun. 13, 1988, and Ser. No. 258,016, filed Oct. 14, 1988, all abandoned, the disclosures of each of which are hereby incorporated by reference.

US PAT NO: 5,198,346 [IMAGE AVAILABLE] L7: 3 of 29
DATE FILED: Jul. 26, 1990

PARENT-CASE:

The present application is a continuation-in-part of U.S. Ser. No. 07/293,980 filed 6 Jan. 1989 now U.S. Pat. No. 5,096,815, entitled "GENERATION AND SELECTION OF NOVEL DNA-BINDING PROTEINS AND POLYPEPTIDES", and assigned to Protein Engineering Corp. The benefit of the filing date of this application is claimed pursuant to 35 U.S.C. 120. The entire text of U.S. Ser. No. 07/293,980 is hereby incorporated by reference and forms a part of the specification herein.

US PAT NO: 5,196,305 [IMAGE AVAILABLE] L7: 4 of 29
DATE FILED: Sep. 12, 1989

US PAT NO: 5,192,553 [IMAGE AVAILABLE] L7: 5 of 29
DATE FILED: Nov. 10, 1988

PARENT-CASE:

This application is a continuation-in-part of copending U.S. application Ser. No. 07/119,746 filed Nov. 12, 1987, now U.S. Pat. No. 5,004,681 which is incorporated by reference herein in its entirety.

US PAT NO: 5,187,083 [IMAGE AVAILABLE] L7: 6 of 29
DATE FILED: Nov. 13, 1990

US PAT NO: 5,176,996 [IMAGE AVAILABLE] L7: 7 of 29
DATE FILED: Dec. 22, 1989

This application is a continuation-in-Part of Applicants Co-pending U.S. application Ser. No. 287,359 filed Dec. 20, 1988, now abandoned.

US PAT NO: 5,176,995 [IMAGE AVAILABLE]
DATE FILED: Aug. 15, 1989

L7: 8 of 29

PARENT-CASE:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. Ser. No. 934,955, filed Nov. 26, 1986, now abandoned, which is a continuation-in-part application of U.S. Ser. No. 818,127, filed Jan. 10, 1986, now abandoned. This application is also a continuation-in-part application of U.S. Ser. No. 828,144, filed Feb. 7, 1986, which issued as U.S. Pat. No. 4,683,195 on Jul. 28, 1987, which is a continuation-in-part of U.S. Ser. No. 824,044, filed Jan. 30, 1986, now abandoned, which is a divisional of U.S. Ser. No. 791,308, 791,308, filed Oct. 25, 1985, which issued as U.S. Pat. No. 4,683,202 on Jul. 28, 1987, and which is a continuation-in-part U.S. Ser. No. 716,975, filed Mar. 28, 1985, now abandoned.

US PAT NO: 5,175,270 [IMAGE AVAILABLE]
DATE FILED: Sep. 10, 1986

L7: 9 of 29

US PAT NO: 5,169,766 [IMAGE AVAILABLE]
DATE FILED: Jun. 14, 1991

L7: 10 of 29

US PAT NO: 5,156,949 [IMAGE AVAILABLE]
DATE FILED: Dec. 24, 1987

L7: 11 of 29

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of U.S. patent application Ser. No 773,447, filed Sep. 6, 1985, now abandoned, which is a continuation-in-part of U.S. patent application Ser. No. 696,534, filed Jan. 30, 1985, now abandoned, which is a continuation-in-part of U.S. patent application Ser. No. 667,501, filed Oct. 31, 1984, now abandoned. The disclosures of the above application are incorporated herein by reference.

US PAT NO: 5,153,202 [IMAGE AVAILABLE]
DATE FILED: Apr. 25, 1991

L7: 12 of 29

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of application Ser. No. 07/560,467 filed Jul. 27, 1990, now abandoned, which is a continuation of application Ser. No. 07/213,822, filed Jun. 30, 1988, now abandoned.

US PAT NO: 5,147,777 [IMAGE AVAILABLE]
DATE FILED: Jun. 18, 1990

L7: 13 of 29

US PAT NO: 5,138,045 [IMAGE AVAILABLE]
DATE FILED: Jul. 27, 1990

L7: 14 of 29

US PAT NO: 5,128,460 [IMAGE AVAILABLE]
DATE FILED: Apr. 4, 1990

L7: 15 of 29

PARENT-CASE:

application Ser. No. 07/333,184, filed Apr. 4, 1989 now abandoned, and a continuation-in-part of [REDACTED]-owned U.S. application No. 07/404,326, filed Sept. 7, 1989, U.S. Pat. No. 5,101,025, which is a divisional of 07/333,184, filed Apr. 14, 1989, now abandoned. S

US PAT NO: 5,126,433 [IMAGE AVAILABLE] L7: 16 of 29
DATE FILED: Oct. 23, 1987

PARENT-CASE:

This application is a continuation of U.S. Ser. No. 898,587, filed Aug. 21, 1986, abandoned.

US PAT NO: 5,104,791 [IMAGE AVAILABLE] L7: 17 of 29
DATE FILED: Feb. 9, 1988

US PAT NO: 5,096,815 [IMAGE AVAILABLE] L7: 18 of 29
DATE FILED: Jan. 6, 1989

US PAT NO: 5,079,351 [IMAGE AVAILABLE] L7: 19 of 29
DATE FILED: Nov. 26, 1986

US PAT NO: 5,034,511 [IMAGE AVAILABLE] L7: 20 of 29
DATE FILED: Apr. 13, 1987

US PAT NO: 5,019,557 [IMAGE AVAILABLE] L7: 21 of 29
DATE FILED: Jul. 10, 1989

PARENT-CASE:

This is a continuation of application Ser. No. 243,198, filed on Sept. 8, 1988, now abandoned, which is a continuation of application Ser. No. 907,363, filed on Sept. 16, 1986, now abandoned.

US PAT NO: 5,019,510 [IMAGE AVAILABLE] L7: 22 of 29
DATE FILED: Oct. 28, 1987

US PAT NO: 5,008,182 [IMAGE AVAILABLE] L7: 23 of 29
DATE FILED: Aug. 15, 1989

PARENT-CASE:

This application is a continuation of application Ser. No. 935,581, filed Nov. 26, 1986, now abandoned.

US PAT NO: 5,004,681 [IMAGE AVAILABLE] L7: 24 of 29
DATE FILED: Nov. 12, 1987

US PAT NO: 4,925,784 [IMAGE AVAILABLE] L7: 25 of 29
DATE FILED: Apr. 4, 1986

US PAT NO: 4,918,166 [IMAGE AVAILABLE] L7: 26 of 29
DATE FILED: Oct. 26, 1987

PARENT-CASE:

This is a continuation-in-part of Ser. No. 07/036,888 filed Apr. 10, 1987.

US PAT NO: 4,908,203 L7: 27 of 29
DATE FILED: Sep. 9, 1987

US PAT NO: 4,833,072 L7: 28 of 29
DATE FILED: Nov. 13, 1986

US PAT NO: 4,791,200 L7: 29 of 29

US PAT NO: 4,738,922
DATE FILED: May 25, 1984

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US PAT NO: 4,738,922

L7: 29 of 29

ABSTRACT:

This invention describes the discovery of a novel phenomena in retrovirus transcription, namely transcriptional trans-activation. Described herein are novel trans-acting factors which may be employed to enhance the production of heterologous genes. Described is a novel trans-acting directing gene, designated herein as the "luk" gene and the 35,000 to 45,000, more specifically about 42,000 dalton molecular weight protein encoded thereby.

The present invention demonstrates the LTR elements of HTLV can function as transcriptional promoters for heterologous genes on both unintegrated and integrated DNA. In general, the HTLV-1 LTR is a stronger promoter than is the HTLV-II LTR in its requirements for cellular and/or viral trans-acting factors in order to function efficiently. HTLV infection results in the production of trans-acting factors that dramatically increase the rate of HTLV LTR-promoted transcription.

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